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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,061	02/12/2002	Kun-soo Kim	1293.1315	2397

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EXAMINER

PSITOS, ARISTOTELIS M

ART UNIT PAPER NUMBER

2653

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/073,061

Applicant(s)

KIM ET AL.

Examiner

Aristotelis M Psitos

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-76 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-76 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/23/03 &amp; 6/16/04</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

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## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The IDS of 6/16/04 and 6/23/04 have been received.

The information disclosure statement filed 6/23/04 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of the AG patent listed that is not in the English language (AG –document is 1999-11987). It has been placed in the application file, but the information referred to therein has not been considered.

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

In the following analysis, the examiner groups/identifies the following claims together by concept/limitation.

Group:

- a) Claims 1, 68,72,75 and 76: drawn to an optical servo system wherein te is predicated upon the type of recording medium,
- b) claims 2, 7,8 and 70-73: further identifying the type of medium as rom and writable,
- c) claims 3,5,35,37: further identifying the signal processor,
- d) claims 4,6, switching and controller ability,
- e) claims 9-12: further identifying the photodetectors,
- f) claims 14-21: identifying an i/v conversion ability,
- g) claims 22-27: identifying first and second order diffracted light,
- h) claims 29-34: phase difference between certain sub-light beams,
- i) claims 39-42: details of the photodetectors,

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- j) claims 44-49: identifying 0 and first order-diffracted light,
- k) claims 50-59: identifying an optical path changing ability,
- l) claims 65-67: identifying a first and second light source.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-3,5,29-35,37,39,41,43,46,48,50-52,54,56,58,66,67,68-76 are rejected under 35 U.S.C. 102(e) as being anticipated by Ijima et al.

Ijima et al discloses an optical system wherein various types of the servo systems/abilities are appropriately engaged so as to detect such a condition predicated upon medium type. Applicants' attention is drawn to figures 1, 3,8 and 14 and the associated disclosure.

Wherein:

a) Ijima et al provides for a plurality of light sources, see col 9, lines 36 plus with respect to claims in the above identified group k; col 23 lines 32 plus with respect to claims in the above identified group e. Furthermore, applicants attention is drawn to the discussion with respect to figure 1 starting at col. 6 line 60 to col. 8 line 61 wherein the reference discusses a three beam the ability, a differential push pull the ability and a differential phase detection the ability. Figure 14 depicts in table format the ability of various the abilities predicated upon medium type. Such meets the limitations of claims 1,2, 68,69,70,71,72,73,74,75 and 76.

With respect to claims 3,5,35 and 37 (group c claims), applicants' attention is drawn to the discussion with respect to the photodetector array and the ability of such in having a main detector (further subdivided), a first additional detector (also further subdivided), and a second additional detector (also further subdivided).

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With respect to group g claims, it is noted that the phase difference between the sub-beams is present.

With respect to group h claims, there is a main photodetector, and corresponding sub-photodetectors for receiving ones of the sub-light beams.

With respect to group i claims, the 0 and first order diffracted light beams are discussed.

With respect to group j claims, the optical path changing device and objective lens is depicted – see figure 2 for instance.

The first and second light sources have been previously identified as has been the current to voltage conversion ability.

2. Claims 1,2,16,17, 29,30,35-54,56-61,66-76 are rejected under 35 U.S.C. 102(e) as being anticipated by Izumi et al.

With respect to claims 1,2,68-76, applicants' attention is also drawn to the discussion in Izumi et al starting at col. 3 line 20 and continuing at least through col. 5 line 8. This describes an appropriate te selection predicated upon medium type – see col. the discussion with respect to figure 9 commencing at col. 14 line 16. The examiner interprets the ability of the switching unit to operate appropriately as inherently meeting the terminology of the independent claims as well as that of the dependent claims noted in groups a & b as identified above.

With respect to claims 16 and 17, (group f claims), such an ability is further depicted in figure 9 of the Izumi et al reference, see the discussion with respect to such elements 40-43 at col. 15 lines 6 plus.

With respect to claims 29 and 30 (group h claims), because the Izumi et al reference discusses standard cds and their appropriate track format (pitch), the phase difference is inherently present.

With respect to claims 35-42, and 43 (group i claims), such defined photodetector arrays are present for the pp and 3 beam detection, see for example the discussion with respect to figure 14, as well as the switch and controller of claims 36 & 38, see the discussion of figure 9.

With respect to claims 44-49 (group j claims), the diffracted light orders are inherently present.

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With respect to claims 50-51,56-59 (group k claims), the optical path-changing element is interpreted as depicted in figure 1 (element 13 for instance), while the objective lens is element 6.

With respect to claims 60 and 61, the astigmatic ability is depicted/discussed with respect to the focusing ability – see, for example, the discussion with respect to figure 9, and col. 16 lines 18 plus for further details. The examiner interprets the formula specified (mathematical relationship) in claim 61 as purely a rewriting of the formula describing the operation herein.

With respect to claims 66 and 67, the second light beam is discussed with respect to the cd and dvd formatted discs.

3. Claims 3, 5, 9-15, <sup>13</sup><sub>A</sub>20,22-24,26,31,33,52,54 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims 1,2,16,17, 29,30,35,37,39,41,43-46, 48, 50-51,56,58,60,61,68-76 as stated in paragraph 2 above, and further in view of Shindo.

With respect to claims 3, and 5, the further second order diffracted light (the claimed second two sub0light beams) is taught by Shindo – see the discussion with respect to the spots ss1,2,3,4 as noted in figure 4. Furthermore, Shindo uses such in his te signal processing – see the discussion with respect to figure 5.

It would have been obvious to modify the base system of Izumi et al with the additional teaching from Shindo et al, motivation is as discussed in Shindo et al – see for example starting at col. 2 line 53.

The sub-photodetector arrangement of claims 9-12, and 13, as well as claims 22-24 and 26 are also depicted in Shindo et al for appropriate detection of the second order diffracted light beam.

With respect to claims 14 and 15, these claims are part of group f and are present as discussed above.

With respect to claims 18 & 20, these claims are part of group f claims identified above and as discussed in the base reference are already present.

With respect to claims 31 and 33, these are part of group h claims, and are present in the base reference as stated above.

With respect to claims 52 and 54, these are part of group k claims and as stated above are present in the base reference.



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4. Claims 4,6-8,19,21,25,27,32,34,53 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claims 3, 5, 11,12, 18,20,22,24,26,31,33,52,54 as stated in paragraph 3 above, and further in view of Masakado.

With respect to claims 4,6, although the above combination provides for switching, the switch device is not depicted as claimed.

Masakado, in figure 3 for instance, teaches the ability of having appropriate switching devices located as required. The control means (CPU) provides the necessary controlling signal.

It would have been obvious to modify the base system as stated above in paragraph 3 with the additional switching location ability as further taught by Masakado. The placement of the switching device is considered merely a relocation of the switching ability provided for in the base references, which lead to no unexpected results.

With respect to claims 7 & 8, such is already present in the discussion of the base reference and no further motivation/change is necessary.

With respect to claims 19 & 20, these are part of group f claims and such is present in the base reference.

With respect to claims 25 & 27, these are part of group g claims and such is present in the base reference.

With respect to claims 32 & 34, these are part of group h claims and such is present in the base reference.

With respect to claims 53 & 55, these are part of group k claims and such is present in the base reference.

5. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 60 above, and further in view of Nakai.

With respect to the limitations of claim 28 although there is no specific mentioning of the diffraction efficiency in the above noted references, the ability in providing appropriate efficiencies for diffraction elements is well known as taught by the Nakai reference – see the discussion with respect to the diffraction efficiency table in figure 2 vs. various wavelengths.

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It would have been obvious to modify the base system as stated above in paragraph 8 with the additional ability of Nakai and provide the appropriate diffraction efficiency as required. The diffraction is an optimization of system parameters and obvious to those of ordinary skill in the art – see *In re Peterson*, 65 USPQ 1379.

6. Claims 62, 63 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 50 as stated in paragraph 8 above, and further in view of Shimamo et al.

The above reference relied upon in paragraph 2 lack both a first and second optical path-changing device.

Shimamo et al also discloses in this environment the ability of having a plurality of the abilities appropriately selected/engaged – see figure 21 and its discussion. Furthermore, the reference also provides for a second different wavelength signal source – see figure 20 and its discussion along with appropriate signal path changing elements, element 2007 and 2005.

It would have been obvious to modify the base system as discussed above in paragraph 8 with the additional teaching with respect to the optical path-changing device, motivation is to appropriately illuminate the record medium.

With respect to claims 62 and 65, first collimating lens and various wavelengths due to cd, of dvd format are taught in the above references discussed in paragraph 8 as well as additionally taught by the Shimamo et al document. Since such a limitation is already present, no further motivation is deemed necessary.

7. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimamo et al as applied to claim 63 above, and further in view of Ohba.

The use/ability of a collimating lens for its appropriate use in this environment is also taught by the Ohba reference.

It would have been obvious to modify the base system as relied upon in paragraph 10 with this additional teaching, motivation is to provide for a collimating lens for each light source to perform the appropriate light collimating function desired in this environment as further discussed in Ohba.

#### ***Conclusion***

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8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamakawa et al – system for identifying disc type(s), Miyabe et al – pp and dpp systems, Uemura et al – various te systems with disc type identification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristotelis M Psitos whose telephone number is (703) 308-1598. The examiner can normally be reached on M-Thursday 8 - 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (703) 305-6137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aristotelis M Psitos  
Primary Examiner  
Art Unit 2653



AMP